

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

AWAPATENT AB
Box 5117
S-200 71 Malmö
Sweden**RECEIVED**

2004 -08- 25

AWAPATENT, Malmö

Date of mailing (day/month/year) 17 August 2004 (17.08.2004)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 21005660	
International application No. PCT/SE2003/001436	International filing date (day/month/year) 12 September 2003 (12.09.2003)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address KEMIRA KEMI AB Box 902 S-251 09 Helsingborg Sweden	State of Nationality SE	State of Residence SE
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name	<input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address KEMIRA OYJ P O Box 44 FIN-02271 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Sudha RAMAKRISHNAN
Facsimile No. (41-22) 338.70.90	Telephone No. (41-22) 338 8516

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCTNOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

AWAPATENT AB
Box 5117
S-200 71 Malmö
SUÈDEDate of mailing (day/month/year)
25 March 2004 (25.03.2004)Applicant's or agent's file reference
21005660

IMPORTANT NOTICE

International application No.
PCT/SE2003/001436International filing date (day/month/year)
12 September 2003 (12.09.2003)Priority date (day/month/year)
13 September 2002 (13.09.2002)

Applicant

KEMIRA KEMI AB et al

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:

AU, AZ, BY, CH, CN, CO, DZ, EP, HU, JP, KG, KP, KR, MD, MK, MZ, RU, TM, US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE, AG, AL, AM, AP, AT, BA, BB, BG, BR, BZ, CA, CR, CU, CZ, DE, DK, DM, EA, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, ID, IL, IN, IS, KE, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MG, MN, MW, MX, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, SC, SD, SE, SG, SK, SL, SY, TJ, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 25 March 2004 (25.03.2004) under No. WO 2004/024640

4. **TIME LIMITS** for filing a demand for international preliminary examination and for entry into the national phase

The applicable time limit for entering the national phase will, subject to what is said in the following paragraph, be **30 MONTHS** from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of **19 months** from the priority date, but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see *PCT Gazette* No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the *PCT Newsletter*, October and November 2001 and February 2002 issues.

In practice, time limits other than the 30-month time limit will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

For filing a demand for international preliminary examination, see the *PCT Applicant's Guide*, Volume I/A, Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

It is the applicant's sole responsibility to monitor all these time limits.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Gijsbertus Beijer - Carlos Roy

Facsimile No.(41-22) 740.14.35

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC-21005660	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE 2003/001436	International filing date (day/month/year) 12.09.2003	Priority date (day/month/year) 13.09.2002
International Patent Classification (IPC) or national classification and IPC C02F 11/04		
Applicant Kemira OYJ et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input checked="" type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 19.01.2004	Date of completion of this report 16.12.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Lars Wallentin/ELY Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE 2003/001436

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-33 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 34-36 received by this Authority on 21-09-2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1-6 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/BE 2003/001436

Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

The priority is considered valid. Document WO 03/059825 A1, cited in the International Search Report, is therefore not considered in the statement regarding inventive step in box V.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-20</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1-20</u>	NO
Industrial applicability (IA)	Claims	<u>1-20</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Most relevant documents cited in the International Search Report:

D1: DE 30 18 018 A1
D2: DE 198 45 207 A1
D3: JP 59177197
D4: JP54136747
D5: EP0220647A1

The present invention intends to solve the problem of providing a new method for sludge processing and disposal.

The closest prior art is represented by D1.

D1 discloses a method for anaerobic digestion of organic matter, such as sludge. The object in D1 is to shorten the treatment time and increase the amount of recovered gas, while avoiding problems associated with mixing feed sludge with re-circulated digested sludge (refer to page 3, "Beschreibung" and lines 4-5 from the end of page 3). D1 disclose an enzymatic pre-treatment, using e.g. amylase, lipase and proteases, followed by addition of methane bacteria to the pre-treated sludge, which is subsequently digested at 38°C under agitation by blowing in recovered biogas (refer to page 4, "Lösung", (a)-(e)). The method further comprises hygienisation at 70°C and pH 12 after the enzymatic treatment and prior to digestion (refer to page 5, last paragraph). The enzymes disclosed in D1 are capable of digesting natural polymeric materials.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

CLAIMS 1-3 AND 8-20:

The invention according to claims 1 and 2 differs from what is disclosed in D1 since a mixture of enzymes is not explicitly mentioned in D1. However, it is apparent that more than one type of enzyme is to be used. Therefore, it is considered obvious to a person skilled in the art to apply a mixture of the enzymes suggested in D1 and the subject matter of claims 1-2 is thus considered to lack an inventive step.

Some of the enzymes in claims 3 are not disclosed in D1. However, in the absence of evidence that any particular effect would be obtained by using those enzymes, as compared to the pre-treatment according to D1, the subject matter of claim 3 is considered to lack an inventive step, for the same reasons as set out for claims 1-2.

The subject matter of claims 8-9, 14 and 15 i.e. hygienisation, enzyme doses and temperature is apparent from D1 or considered obvious, and thus lacks an inventive step.

D1 mentions the use of methanogenic bacteria. It is obvious to a skilled person that addition of other types of fermenting bacteria in the process according to D1 might be necessary too, because of the pre-hygenisation step. Therefore, the invention according to claims 10-13 is considered to lack an inventive step in view of D1.

The subject matter of claims 16-18, i.e. agitation, thickening and chemical/physical/mechanical pre-treatments are conventional sludge treatment steps which belongs within common skill, and has not been shown to give rise to any unexpected effects. Claims 16-18 thus lacks an inventive step.

Furthermore, it is considered obvious to a skilled person to use the process according to D1 either in addition to or instead of conventional digestion, as set out in claims 19-20. Said claims thus lack an inventive step.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

CLAIMS 4-7:

Claims 4-7 relate to the use of a surfactant in the enzyme mixture. Surfactants are not mentioned in D1.

The effect of the surfactant is to increase the bio-availability of the substrate by affecting the surface tension. The problem solved by the invention according to claims 4-7 in relation to D1 is thus to increase the bio-availability of sludge in connection with anaerobic digestion and enzymatic pre-treatment.

A solution to this problem is disclosed in D2, which describes an enzyme preparation for increasing the bio-availability of sludge in connection with digestion (refer to page 2, lines 3-5 and 33-36). The enzyme preparation according to D2 may comprise e.g. cellulose, protease, amylase, pectinase and non-ionic or cationic surfactants (refer to page 2, lines 37-65).

Since D1 gives no detailed instructions as to which enzymes to use, a skilled man starting from D1 would use a known product intended for improving anaerobic digestion. He would therefore use the preparation disclosed in D2 in the process according to D1 so as to arrive at the invention according to claims 4-5. The combination is obvious since D1 and D2 are technically very closely related. Since non-ionic surfactants are recommended in D2, it is also considered obvious to use any of the substances, known per se, disclosed in claim 6. The surfactant content disclosed in claim 7 is not considered inventive with respect to the combination of D1 and D2. Thus, the invention according to claims 4-7 is considered to lack an inventive step in view of D1 in combination with D2.

Finally, documents D3-D5 all relate to improving the efficiency of anaerobic sludge digestion through enzymatic pre-treatment and are also considered relevant regarding

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

inventive step with respect to the claimed invention (refer to abstracts of D3 and D4 and page 4, lines 36-51 and page 6, lines 29-49 in D5). The same type of argumentation regarding inventive step as with D1 is possible.

Claims 1-3 and 8-20 is considered to lack an inventive step in view of each of D3 and D5 and claims 1-3, 8-17 and 19-20 is considered to lack an inventive step in view of D4.

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 03/059825 A1	24-07-2003	18-12-2002	02-01-2002

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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